

# Plasma cell balanitis: clinical and histopathological features—response to circumcision

B Kumar, R Sharma, M Rajagopalan, B D Radotra

## Abstract

**Objective**—To evaluate the clinico-pathological features and response to circumcision in patients with plasma cell balanitis.

**Subjects and method**—32 uncircumcised men with penile lesions typical of plasma cell balanitis. Twenty specimens were available for histopathology.

**Results**—Lesions involved prepuce and glans in 17, prepuce only in 10 and in 5 were localised to glans alone or extended to coronal sulcus. Histopathology showed variable features but were consistent with the diagnosis of plasma cell balanitis. Haemosiderin pigment could be detected in only three specimens of patients with shorter duration of the disease. Twenty seven patients were treated with circumcision and no recurrence was noticed in 3 years of follow up.

**Conclusion**—Circumcision is an effective treatment modality in plasma cell balanitis. Absence of haemosiderin pigment in majority of tissue sections is difficult to explain but may be related to longer duration of the disease.

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Keywords: Balanitis, Plasma cell, Circumcision

## Introduction

Since the original description of a distinctive balanitis by Zoon which he termed balanoposthitis chronica circumscripta plasmacellularis in 1952,<sup>1</sup> there have been few reports of this condition in the literature. Subsequently similar lesions have been described on the vulva<sup>2,3</sup> and the lips.<sup>4</sup> This rare disorder consists of a single, red, shiny and smooth patch involving the glans penis or adjacent prepuce or both.<sup>1,5-7</sup> The characteristic histological features are: a band-like mainly plasmacytic inflammatory infiltrate of the upper dermis, dilated capillaries and deposits of haemosiderin.<sup>1,5</sup> Treatment with topical steroids<sup>8</sup> is palliative at best, with many patients being totally unresponsive.<sup>6,7,9</sup> Circumcision which was advocated as the best modality of treatment many decades ago has been reported to be beneficial in the recent reports.<sup>6,7,10</sup> We report 32 cases with this condition 27 of whom were treated successfully with circumcision.

## Patients and methods

Thirty two uncircumcised men presented with a shiny, reddish, macular or minimally infiltrated lesion(s), on the glans penis or prepuce or both. Clinical details are shown in the table. All of them had received topical treat-

Departments of Dermatology, Venereology and Leprology and Pathology, Postgraduate Institute of Medical Education and Research, Chandigarh-160012, India

B Kumar  
R Sharma  
M Rajagopalan  
B D Radotra

Correspondence to:  
Dr Bhushan Kumar,  
Additional Professor,  
Department of  
Dermatology, Venereology  
and Leprology, PGIMER,  
Chandigarh-160012, India.

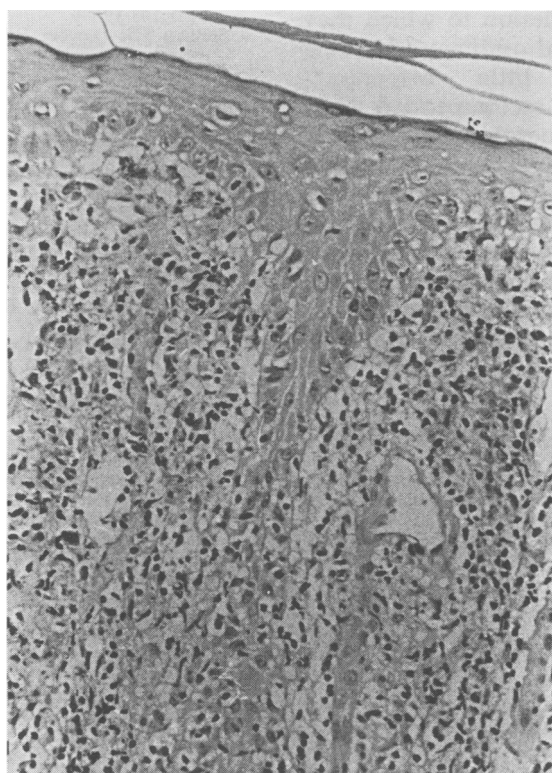
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## Clinical details of patients

| No. | Age (years) | Duration (years) | Symptom(s)                         | Site of lesion                         | Circumcision* |
|-----|-------------|------------------|------------------------------------|--|---------------|
| 1   | 40          | 1                | Asymptomatic                       | Glans and prepuce                      | Done          |
| 2   | 38          | 3                | Asymptomatic                       | Glans and prepuce                      | Done          |
| 3   | 28          | 4                | Asymptomatic                       | Prepuce                                | Not done      |
| 4   | 37          | 1                | Pruritis                           | Prepuce                                | Done          |
| 5   | 24          | 1½               | Asymptomatic                       | Prepuce and glans                      | Not done      |
| 6   | 70          | 4                | Pruritis                           | Prepuce                                | Done          |
| 7   | 55          | 2                | Pruritis                           | Prepuce                                | Done          |
| 8   | 38          | 4                | Asymptomatic                       | Prepuce                                | Done          |
| 9   | 56          | 2                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 10  | 70          | 3                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 11  | 55          | 3                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 12  | 48          | 2                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 13  | 65          | 10               | Asymptomatic                       | Prepuce and glans                      | Done          |
| 14  | 64          | 25               | Asymptomatic                       | Prepuce and glans                      | Done          |
| 15  | 30          | 2                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 16  | 45          | 1                | Pruritis                           | Prepuce                                | Done          |
| 17  | 54          | 4                | Asymptomatic                       | Prepuce                                | Not done      |
| 18  | 50          | 3                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 19  | 40          | 3                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 20  | 42          | 3                | Increased sub-prepuce discharge    | Glans with extension to coronal sulcus | Done          |
| 21  | 47          | 3                | Asymptomatic                       | Prepuce and glans                      | Done          |
| 22  | 50          | 5                | Asymptomatic                       | Glans                                  | Not done      |
| 23  | 63          | 1                | Mucopurulent sub-prepuce discharge | Prepuce and glans                      | Done          |
| 24  | 40          | 1                | Increased sub-prepuce discharge    | Prepuce                                | Done          |
| 25  | 42          | 3/12             | Increased sub-prepuce discharge    | Glans, prepuce coronal sulcus          | Done          |
| 26  | 56          | 3                | Asymptomatic                       | Glans and prepuce                      | Done          |
| 27  | 28          | 1                | Asymptomatic                       | Prepuce and coronal sulcus             | Not done      |
| 28  | 70          | 3                | Asymptomatic                       | Glans                                  | Done          |
| 29  | 42          | 1                | Asymptomatic                       | Glans                                  | Done          |
| 30  | 44          | 6/12             | Asymptomatic                       | Prepuce                                | Done          |
| 31  | 37          | 1                | Asymptomatic                       | Glans                                  | Done          |
| 32  | 24          | 1½               | Increased sub-prepuce discharge    | Glans and prepuce                      | Done          |

\*Lesions in all patients healed after circumcision after variable periods of time.

Figure 1 Attenuated epidermis containing lozenge shaped keratinocytes with dense dermal infiltrate rich in plasma cells (H & E  $\times 140$ ).



ment with steroids, antifungal agents and combinations of steroids with antifungals or antibacterials. Some of them responded partially, but temporarily. Biopsy material or circumcised tissue was available from 20 patients. In addition to routine staining with haematoxylin and eosin, Pearl's stain was used to detect haemosiderin. Histological features observed were variable but attenuated thickness of epidermis, dense dermal infiltrate composed predominantly of plasma cells and scattered lymphocytes were typical, (fig. 1 and 2). Haemosiderin deposits were present in only three specimens.

All except five patients underwent circumcision and the lesions resolved within a few months. No recurrences were noticed in any

of the circumcised men followed for up to 3 years.

## Discussion

Plasma cell balanitis can often be confused clinically with other conditions, such as erythroplasia of Queyrat, fixed drug eruption, psoriasis, lichen planus, secondary syphilis, candidiasis and Reiter's disease.<sup>7</sup> The classical feature of plasma cell balanitis is the appearance of a shiny, glazed, reddish macular erythematous lesion with multiple pin-point bright red spots (cayenne-pepper spots) on the glans penis or prepuce or both in middle aged or elderly men.<sup>1,5,7,9</sup> In some instances, erosions with a tendency to bleed are present. Lesions with fleshy buds and erosions and rarely vegetating forms have been described.<sup>11</sup> All our patients had the classical characteristic appearance. Their age varied widely from 24 to 70 years. The aetiology of plasma cell balanitis is unknown. Chronic infection by *Mycobacterium smegmatis*, heat, constant friction and poor hygiene are believed to be the causative factors.<sup>7,12</sup> The clearance of lesions after circumcision and occurrence of disease almost exclusively in the uncircumcised men<sup>5</sup> lend support to theories regarding role of constant friction and probably poor hygiene in its causation.<sup>12</sup> The primary event in pathogenesis seems to be extravasation of blood and subsequent haemosiderin deposition. Recently Leonforte<sup>13</sup> had described the presence of phagocytosed material in the plasma cells (in addition to its presence in macrophages and endothelial cells) which he proposed could be iron. The absence of horny and granular layers, occasional dyskeratotic cells but without atypia and even predominant lymphocytic infiltrate have been described.<sup>2</sup> Immunological studies have suggested IgG, and IgA producing plasma cells.<sup>12</sup> Most of our patients showed the uniformly characteristic histological changes, namely, epidermal thinning, loss of rete ridges, "lozenge keratinocytes" and "watery spongiosis", proposed as unique features of plasma cell balanitis by Souteyrand *et al.*<sup>5</sup> There was a subepidermal, predominantly plasmacytic inflammatory infiltrate with proliferation and vertical orientation of dermal vasculature and erythrocyte extravasation in all our cases, as described by others.<sup>1,5,7</sup> However, haemosiderin deposition was present in only three of our cases, which has been earlier described as one of the characteristic histological features.<sup>1,5,7</sup> Absence of haemosiderin in most of the sections is difficult to explain but it may be due to the longer duration of the disease. The positive specimens were from patients with recent lesions. In a recent report the presence of excessive haemosiderin deposition has been suggested to be a feature of a lichen-aureus like variant of plasma cell balanitis.<sup>14</sup>

Patients demand treatment because of discomfort and the presence of a disfiguring disease on a vital sex organ. Most patients with the malady are not willing to tolerate an

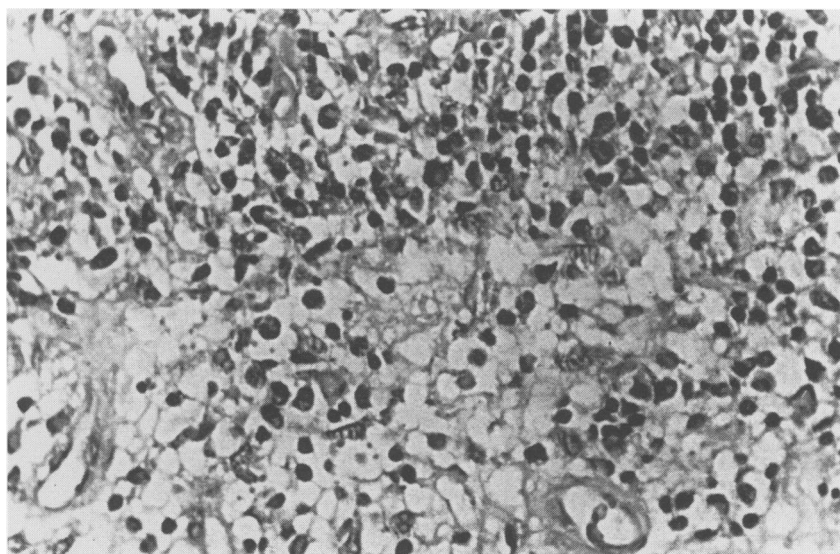


Figure 2 Photomicrograph showing plasma cell infiltrate, dilated capillaries and extravasated RBCs in upper dermis (H & E  $\times 280$ ).

annoying, embarrassing lesion to which they have to apply creams and ointments for long periods with very little response.<sup>6,7</sup> Circumcision was first recommended as a cure in 1956.<sup>15</sup> Subsequently this relatively simple but not very popular procedure has been used satisfactorily and the response was reported to be even dramatic.<sup>6,7,10</sup> All our patients treated by circumcision showed complete resolution of even the lesions on the glans in a few months. We recommend a revival of this simple procedure for the treatment of Zoon's balanitis.

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